



LPE Short Subjects



- **LPE-Sponsored Studies**
- **Energy Stewardship**
- **Seabees ISO MAGTF**
- **MARFORRES Initiative to Restructure Sixth ESB**
- **EOD Company TOECR Status**
- **Capabilities Portfolio Management (CpM)**
 - **Joint Engineer CAM**
 - **Joint Logistics Services FCIB**

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LPE Sponsored Studies



LPE Sponsored Studies

Explosive Hazard reduction for Mobility support to the MAGTF

- Engineer IED Reduction Initiative:
 - Result of Oct 07 Ground Board Tasker to examine:
 - Implementation of Combat Engineers “Blow and Go” and Explosive Hazards Reduction
 - Integration of EOD organically into Division
 - LP held EOD and Engineer Explosive Hazards Summit in Jan 08
 - No consensus (complex weapon system vs. booby trap)
 - Way Ahead
 - Submitted for DOTMLPF Study by MCCDC
 - » October 2008 Start
 - Education-
 - » VIP visit to EOD School sked for MEF/ MCES/Division Engineers



LPE Sponsored Studies (continued)

- PEI to Maintainer Ratio:
 - Proliferation of Command Centers and “Habitability Sets” for Utilities Equipment without commensurate increase in maintainers:
 - SASSY Allowance for Tactical Generators – 5190
 - MCSC Generators in Al Anbar Province - 4240
 - August 08 – began study through MCCDC to establish a realistic ratio



LPE Sponsored Studies (cont)

- Bulk Fuel:
 - Last study examined bulk fuel transportation for existing capabilities
 - Examine
 - Scenario based current and future receipt and storage
 - Future systems
 - Task organization, equipment, planning factors

Energy Stewardship



OSD Energy Security Task Force (ESTF)

- Established in May 2006 to address SecDef tasking:
 - “Power and Energy Alternatives and Efficiency – DDR&E will chair a task Force with representatives from the Military Services, Defense Agencies, USD(ATL), USD(P), and USTRANSCOM to define an investment roadmap for lowering DoD’s fossil fuel requirements and develop alternate fuels.
 - Findings on the total delivered cost of fuel consumed by DoD platforms, including logistics and force protection.
 - Proposals to improve energy efficiency of DoD platforms.
 - Recommendations to enable the production and use of alternate fuels, especially domestically-sourced fuels.”
- Provided initial review to DAWG in Sept 2006
 - DAWG funded 7 demonstration projects that would directly support warfighters (\$+131M for FY08 program starts)
- ESTF continues to integrate and lead DoD energy efforts
- 2008 GDF tasked development of a strategic plan

OSD Tactical Energy Stewardship - Drivers

U.S. Marine Corps Maj. Gen. Richard Zilmer, Al-Anbar Commander, submitted an **urgent request for renewable energy systems**, due to the vulnerability of American supply lines to insurgent attack by ambush or roadside bombs. The request said “**reducing the military's dependence on fuel for power generation could reduce the number of road-bound convoys.**” ...’Without this solution [renewable energy systems], personnel loss rates are likely to continue at their current rate. Continued casualty accumulation exhibits potential to jeopardize mission success...’”

Defense News, August 2006



Mandates...Infrastructure

- **EPAAct 2005**

- 75% Alternative Fuel Vehicles (AFV) in Metropolitan Areas

- **Executive Order 13149**

- 20% reduction in petroleum fuels



LP Energy Stewardship Efforts

- Represented HQMC on:
 - Two Defense Science Boards
 - Three Fuel Efficiency GAO Surveys
 - OSD Energy Security Task Force
- Wrote 2002 CMC Policy Letter for Fossil Fuel Reduction
 - Established Energy reduction KPP's for Material Solutions
- Support MCSC PM Power in Alternative Energy Solutions and experimentation – POM 10 Initiatives (MCCDC plus up \$15M)



POM 10 - MCSC Initiatives - Alternative Power for Communications

Overarching program

- **Radio Power Adapters**
- **24 VDC Radio Power Adapters**
- **General Purpose Power Supplies**
- **On Board Vehicle Power**
- **Battery Management Systems**
 - **Automotive Systems**
 - **Comm-Elec Radio/Sensor System**



Fuel \$



Force
Protection
Requirements



Operational
Costs



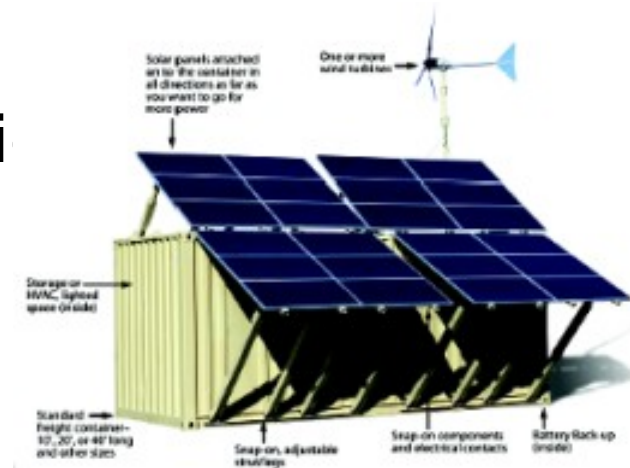
Upfront
Costs





Defense Renewable Energy Alternative Module (DREAM)

- MCSC/ONR Rapid Technology Transition (RTT) funding (FY07-08) (\$760K)
 - Loaded Weight \leq 4200 lbs
 - HMMWV towable
 - Up to 5 kW Output (3 kW continuous output)
 - Energy storage in batteries
 - May use:
 - solar,
 - wind,
 - Back-up generator
 - \geq 15 days operation without refuel





MCSC On-Board Vehicle Power Systems

USMC Statement of Need

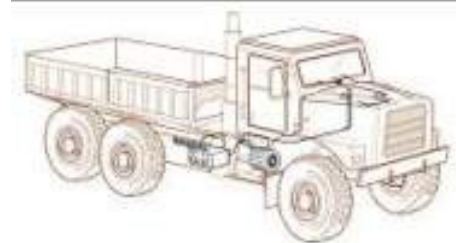
DC-AC Power Inverters
1500- 3000 watts



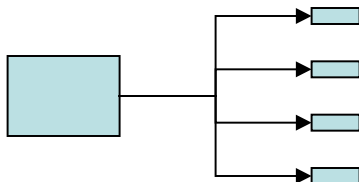
OBVP - Small
5 - 8 kW (HMMWV)



OBVP - Large
60 - 100 kW (MTVR)



Vehicle DC Power Distribution



OBVP - Medium
30 kW Add-on HMMWV





Integrated Trailer, ECU, Generator (ITEC)

Capability Description

- New Start Initiative
- An integrated and organically supported system comprised of components that provide:
 - HMMWV towable tactical trailer,
 - Environmental Control Unit (heating & cooling)
 - Electric generator (for ECU power and export power)
- Support missions across the MAGTF
- Supportive of all Operational Concepts, plus
 - Reduces embarkation footprint,
 - Reduced support issues of disparate systems

currently fielded

Deficiency Satisfaction

- Current programs of record and FMF units are buying untested commercial systems without adequate post-production support
- Maintenance organizations not trained on equipment
- Unit costs are 2X military systems due to:
 - Purchasing method of buying small quantities at a time
 - Constantly changing configuration / undefined needs

• Future programs are addressing / solidifying

Material Solution - Modified COTS



Requirements Status

- Individual programs derived requirements in their ORDs – principally driven by transportability requirement
- Urgent UNS for FRSS & HMMWV towable 22 kW Generator
- UNS for TGECU submitted by 2n FSSG – April 2005
- AAO potential: 400-800 (depending on level of backup needed) based on Mobile Electric Power Study
- Fielding Plan – no addressed yet



Take Aways on Tactical Fuel Savings

Until you address Aviation -

...the Infantry and Logisticians are not where to look for savings

But in situations where diesel fuel is:

- not available,
- can't be used (man-portable items), or
- prohibitively expensive

Alternatives offer significant advantages.



Finding the Way Ahead

- Include fuel efficiency in all requirements and acquisition processes.
- Aggressively explore/pursue alternative fuels and power technologies.
 - Commercial application efficiency improvements will benefit tactical applications
 - Alternative Fuel Hybrid Electric Vehicles, Hydrogen Fuel Cells
- **Challenge - Establishing savings while building to 202K**

Seabees ISO MAGTF



Update Terms of Reference (TOR)

- NCD and LPE co-authored rewrite of 1988 Vintage TOR
 - Major Revisions
 - Aligned changes in organizations for Interoperability
 - Emphasize
 - Interoperability Working Group (IWG)
 - Capitalize on Current Operations and expand for future
 - » Security Cooperation MAGTFs
 - » Commonality of Equipment/Training
 - Re-examine Doctrinal C2 Relationships
 - » NCF Asset as MSC
 - » (II MEF next rendition of OIF or under MLG?
- TOR Status –
 - Vetted through MARFORs
 - Staffing through Navy N4

MARFORRES Initiative to Restructure Sixth ESB



4th MLG Initiative

- MLG G-1 Chairing OPT (LPE, LPV, TFSD participating)
 - Proposal to take second Bulk Fuel Company and convert into line company
 - Pros – manpower to assist in Dwell/augment 9th ESB (addl Line Co non-competed in URB)
 - Con – OPlan need for additional Bulk Fuel Capability?
 - OPT met via Teleconference on 22 Sep

Explosive Ordnance Disposal (EOD) Company T/O



EOD Company TOECR Status

- TOECR (proposed in 2006) never made it out of MEF (13/136 for 1st and 2nd MLG)
 - Challenges (additional manpower for augments)
 - Corpsmen/radio operators/First Sergeant, etc.
 - Mirror Imaging across MLGs
 - Way Ahead – EOD Action Officer at HQMC to submit through TFSD

Overarching CPM Philosophy

Balancing Capability and Capacity Through the Future



*Balance is based on moving the
fulcrum, measured in risk and
interdependence*



Joint Engineer Community Governance

Portfolio Capability Area

Stakeholders

Community of Interest

Community of Practice

(JS J4, Engr CAM, Service Engineers and JFCOM)

R&D Community

Facility Management Agencies

Operational Elements

COCOM Engineers

NGA

Service Programmers

Acquisition Community

Distribution System

COCOM

DHS

DUSD (I&E)

FEMA

DLA

Service Logisticians

Deployment System

DoS

Stakeholders

JL Functional Capability Integration Board

(Evolved version of today's JLB)

JS, J4- L&MR

Svc 4s, DLA, DCUSTC, DCJFCOM + **Engr CAM**

Joint Operational Engineer Board

CHAIR: Engr CAM + DJ4

MEMBERS: Service, COCOM, & JFCOM Engineers (GO/FO Level)

Meets Quarterly

JOEB Coordination Group

CHAIR: J4 Engr and **Engr CAM AO**

MEMBERS: Service and JFCOM Engineers (O6 Level)

Meets Bi-Weekly

CAM Staff

Working Groups

Requirements

Resourcing

Training

Equipping

Engineer RDT&E

CBT Engr

Gen Engr

Geo Engr

TWG

CWG

DTWG

IWG

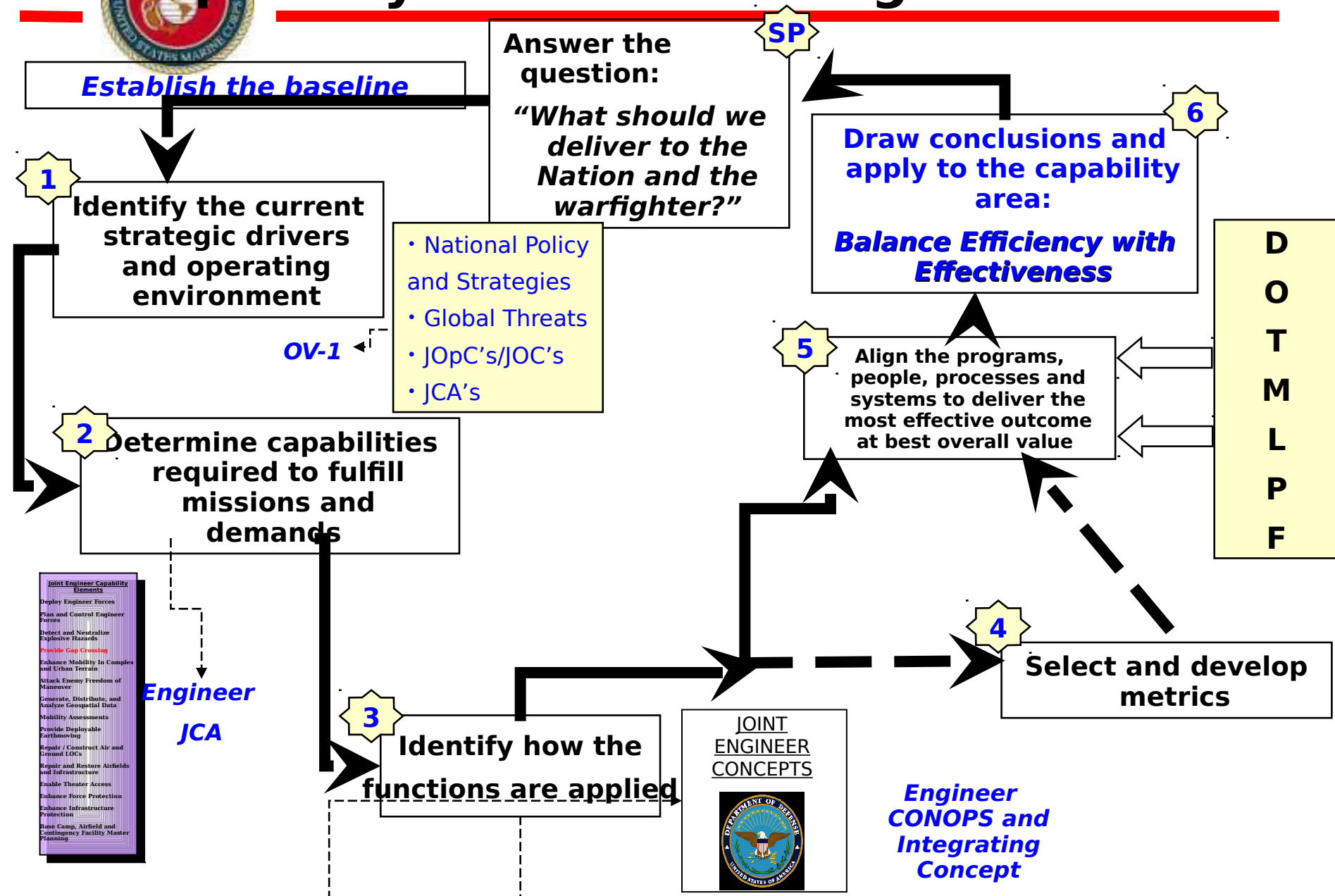
SWG

Meet Quarterly

Or More Often as Required



Capability Portfolio Management Process





CpM Initiative (Acquisition)

Joint Engineer Equipment Acquisition

- Collaborative Establishment of Lead/Follow Services Buys:
 - Examples: USMC lead on Assault Breacher Vehicle and Joint Assault Bridge – Army buys off contract
 - Opportunities – Commonality from equipment/parts/maintenance support
 - Challenges: Synchronization of equipment buys and Service parochialism



CpM Initiative

Joint Engineer Operations Course

- Established to provide current joint ops knowledge to Mid-Level (O-3, O-4) Officers and Mid-Level (E-6, E-7) NCOs
- Original course schedule - 3/year with 45 students
- To meet needs of combatant commanders
 - 4 classes now held annually
 - One each at Wright-Patterson AFB, Fort Leonard Wood, MCB Quantico and Port Hueneme (hosted by individual Service)
 - Class size is 53 students:
 - USA- 19;
 - USAF- 16;
 - USN- 7;
 - USMC- 3;
 - MN- 1;
 - Industry- 2;
 - CoE Civ- 2;
 - Non-Engineer - 2



Joint Engineer Operations Course

- Includes Distance Learning (48 hrs) and In-Residence (32 hrs) phases
- 265 Graduates in ranks from E-6 to O-6 including Warrant Officers
- Next Class held at MCB Quantico 17-21 Nov
- Current funding agreement has services paying a “fair share”
 - USA- \$170.5K; USAF- \$146.2K; USN- \$65K; USMC- \$24.3K



Joint Airfield Damage Repair (ADR) Working Group

- Premise: Airfield as Weapon System: ADR part of system
- ADR encompasses R&D, acquisition, training and material/equipment employment
- Joint/Coalition Need for new ADR procedures and materials
 - Current technology based upon Cold War threat - 3 large craters repaired in 4 hours
 - New mission requirement drives need for repair of 100 small craters and restore flight operations in 8 hours (PACAF)
- PACAF/ PACOM combined ADR needs - pushed to DEPSECDEF and OSD for assistance
 - Critical Runway Assessment and Repair (CRATR) Joint Capabilities Technology Demonstration (JCTD) program established with OSD approval and funding
 - CRATR JCTD efforts combined with ongoing ADR WG efforts



ADR WG (cont)

- Meeting at Tyndall AFB (20 July 08)
 - Covered ADR R&D Efforts
 - Soviet Slab Project
 - Asphalt Concrete Pavement Evaluation
 - Contingency Culvert Project
 - FFM Inspection/Specification
 - High Temperature Mat Testing
 - New Mat Development
 - Pelletized Asphalt Repair
 - Fiberglass Mat and Anchor Project
 - Crater Capping and Foam Injection Backfill
 - Rubber Removal
 - Covered CRATR JCTD R&D program



ADR WG (cont)

- CRATR JCTD R&D program At Tyndall AFB (20 Jul – 27 Sep 08)
 - Spall Repair Projects
 - Evaluation of Polymeric Spall Repair Material
 - UAV - Automated Damage Assessment Project
 - Automated Damage Assessment – MOS Selection
 - Advanced ADR Backfill and Crater Capping Project
 - ADR Equipment Project



Tyndall Silver Flag August 2008

CRATR Demonstration





CRATR JCTD Timeline

- FY08
 - Jan 08: JCTD Kick off Meeting, Atlanta,
 - Apr 08: Materials/Equipment Vendor Day, (Tyndall AFB)
 - Accept promising candidates, reject others
 - Conduct evaluation at test base
 - Aug 08: Limited Utility Assessment, (LUA 1) – CONUS Demonstration (Tyndall AFB)
- FY09
 - Apr 09: LUA 2 – OCONUS Demonstration (Kadena AB)
 - Expect prototype Rapid Auto Damage Assessment System (RADAS) to remain as residual capability
 - Mar-Apr 09: Approved ADR Capabilities Development Document (CDD)
 - Aug 09: Military Utility Assessment (MUA), CONUS Demonstration, (Malmstrom AFB)
- FY10
 - Transition CRATR JCTD to formal ADR Acquisition Program via FY10 ADR POM Initiative
 - Systems Development & Demonstration (SDD)



Logistic Services

Capability Area Management (CAM)

- Encompasses Logistics Services (Joint Definition)

Field Billeting

Shower

Laundry

Latrine

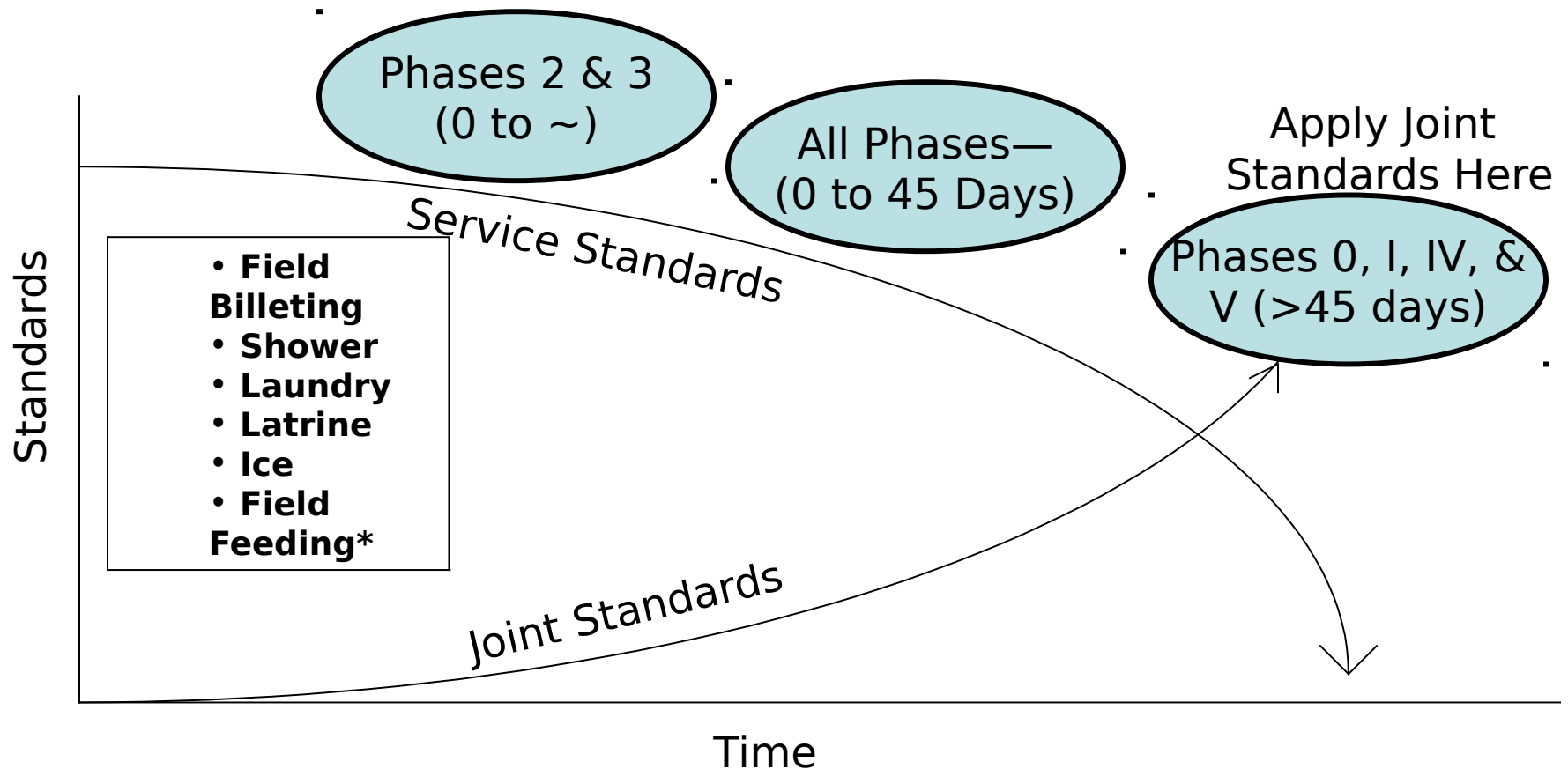
Ice

Field Feeding





Concept to Apply Joint Standards



* Field Feeding: Applies to all phases



Joint Standards of Life Support Rationale

- **Intent**
 - Equip to eliminate 'haves'/'have nots'
 - Favor Joint Commander's demand signal and objectives
- **Benefits**
 - Provide a consistent level of habitability when possible for Soldiers, Sailors, Airmen, and Marines
 - Facilitate pursuit of 'Jointness'
 - Increase equipment standardization
 - Reduce acquisition & life - cycle costs
 - Improve readiness via common logistics supportability
 - Narrow the differences in Service doctrine
- **Parameters**
 - Avoid standards that drive additional or increasing air movement
 - Avoid interference with Service Phase II/III CONOPS
 - Leverage existing POMs, invested capabilities, Service strengths
 - Pursue 'jointness' thru attrition, programmed modernization, and reset



JCS Proposed Joint Standards of Life Support

Category	Proposed Standard
Field Feeding	Adopt Army Standard as minimums for all Phases (see chart). UGRs represent minimum %s.
Field Billeting	Adopt USAF, Navy, and USMC Standard of ~50 SF per person (in an environmentally controlled environment). (If TTP & mission planning prescribe continuous rotating sleeping shifts, (e.g. day/night, 24/7/365, populations) in each billeting facility may be adjusted to achieve effectively 50 SF per person).
Field Shower	Modified Army: Unit/Field Service Co. Min <u>2</u> - 7 minute shower with soap and hot water per week. Medical and Females in cycle 2 - 7 minute showers per week. Shower Heads to population 1:20 threshold, 1:10 (Objective)
Field Laundry	Adopt USAF Standard 17 lbs./PP/Week minimum
Field Latrine	Modified Army: Water flush latrines. Minimum 1 water-flush latrine per 25 males, (or, 4% of males, 6% of females)
Field Ice (temperate to tropical)	Modified Army: 8 lbs per day minimum (based upon Army 2.9 lbs plus additional 4-6 lbs/soldier/day. (<32F...no standard)

Implications to USMC: Potential for additional Funding required to support higher standards than USMC SOL for Expeditionary Warfare – Marine Rep non-concurs with any mandated higher standards



JCS - Request for Senior Warfighters Forum (SWARF)

- TRANSCOM initiate a mini-SWarF to obtain CCDR concur, non-concur, and comment on proposed Joint Standards of Life Support, complete by 1 November



Logistic Services POA&M

